INEEL V-3 Liquids, SVOC Analysis

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Acenaphthene	U (1)	UHC Treatment Standard	UHC	0.059	3.4	1 mg/L detection limits exceed the wastewater treatment standard.
Acenaphthylene	U (1)	UHC Treatment Standard	UHC	0.059	3.4	1 mg/L detection limits exceed the wastewater treatment standard.
Anthracene	U (1)	UHC Treatment Standard	UHC	0.059	3.4	1 mg/L detection limits exceed the wastewater treatment standard.
Benzo (a) anthracene	U (1)	UHC Treatment Standard	UHC	0.059	3.4	1 mg/L detection limits exceed the wastewater treatment standard.
Benzo (a) pyrene	U (1)	UHC Treatment Standard	UHC	0.061	3.4	1 mg/L detection limits exceed the wastewater treatment standard.
Benzo (b) fluoranthene	U (1)	UHC Treatment Standard	UHC	0.11	6.8	1 mg/L detection limits exceed the wastewater treatment standard.
Benzo (g,h,I) perylene	U (1)	UHC Treatment Standard	UHC	0.0055	1.8	1 mg/L detection limits exceed the wastewater treatment standard.
Benzo (k) fluoranthene	U (1)	UHC Treatment Standard	UHC	0.11	6.8	1 mg/L detection limits exceed the wastewater treatment standard.
Benzoic acid	U (5)	None	NA	NA	NA	
Benzyl alcohol	U (1)	None	NA	NA	NA	
Butylbenzylphthalate	U (1)	UHC Treatment Standard	UHC	0.017	28	1 mg/L detection limits exceed the wastewater treatment standard.
Bis (2-chloroethoxy)methane	U (1)	UHC Treatment Standard	UHC	0.036	7.2	1 mg/L detection limits exceed the wastewater treatment standard.
Bis (2-chloroethyl)ether	U (1)	UHC Treatment Standard	UHC	0.033	6	1 mg/L detection limits exceed the wastewater treatment standard.
Bis (2-chloroisopropyl) ether	U (1)	UHC Treatment Standard	UHC	0.055	7.2	1 mg/L detection limits exceed the wastewater treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

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INEEL V-3 Liquids, SVOC Analysis

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Bis (2-ethylhexyl) phthalate	0.1 J	UHC Treatment Standard	UHC	0.28	28	Concentration is below both treatment standards, therefore it is not a UHC.
4-Bromophenyl-phenylether	U (1)	UHC Treatment Standard	UHC	0.055	15	1 mg/L detection limits exceed the wastewater treatment standard.
Carbozole (or Carbazole)	U (1)	None	NA	NA	NA	
Chrysene	U (1)	UHC Treatment Standard	UHC	0.059	3.4	1 mg/L detection limits exceed the wastewater treatment standard.
4-Chloroaniline (p-chloroaniline)	U (1)	UHC Treatment Standard	UHC	0.46	16	1 mg/L detection limits exceed the wastewater treatment standard.
4-Chloro-3-Methylphenol (p-chloro-m-cresol)	U (1)	UHC Treatment Standard	UHC	0.018	14	1 mg/L detection limits exceed the wastewater treatment standard.
2-Chloronaphthalene	U (1)	UHC Treatment Standard	UHC	0.055	5.6	1 mg/L detection limits exceed the wastewater treatment standard.
4-Chlorophenyl-phenylether	U (1)	None	NA	NA	NA	
2-Chlorophenol	U (1)	UHC Treatment Standard	UHC	0.044	5.7	1 mg/L detection limits exceed the wastewater treatment standard.
Dibenz(a,h)anthracene	U (1)	UHC Treatment Standard	UHC	0.055	8.2	1 mg/L detection limits exceed the wastewater treatment standard.
Dibenzofuran	U (1)	None	NA	NA	NA	
1,2-Dichlorobenzene (o-dichlorobenzene)	U (1)	UHC Treatment Standard	UHC	0.088	6	1 mg/L detection limits exceed the wastewater treatment standard.
1,3-Dichlorobenzene (m-dichlorobenzene)	U (1)	UHC Treatment Standard	UHC	0.036	6	1 mg/L detection limits exceed the wastewater treatment standard.
1,4-Dichlorobenzene (p-dichlorobenzene)	U (1)	7.5 (D027), UHC Treatment Standard	D027, UHC	0.09	6	1 mg/L detection limits exceed the wastewater treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

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INEEL V-3 Liquids, SVOC Analysis

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
3,3-Dichlorobenzidine (Dibenz (a,h) anthracene)	U (1)	UHC Treatment Standard	UHC	0.055	8.2	1 mg/L detection limits exceed the wastewater treatment standard.
2,4-Dichlorophenol	U (1)	UHC Treatment Standard	UHC	0.044	14	1 mg/L detection limits exceed the wastewater treatment standard.
Diethylphthalate	U (1)	UHC Treatment Standard	UHC	0.2	28	1 mg/L detection limits exceed the wastewater treatment standard.
2,4-Dimethylphenol	U (1)	UHC Treatment Standard	UHC	0.036	14	1 mg/L detection limits exceed the wastewater treatment standard.
Dimethylphthalate	U (1)	UHC Treatment Standard	UHC	0.047	28	1 mg/L detection limits exceed the wastewater treatment standard.
Di-n-butylphthalate	U (1)	UHC Treatment Standard	UHC	0.057	28	1 mg/L detection limits exceed the wastewater treatment standard.
Di-n-octylphthalate	U (1)	UHC Treatment Standard	UHC	0.017	28	1 mg/L detection limits exceed the wastewater treatment standard.
4,6-Dinitro-2-methylphenol	U (5)	None	NA	NA	NA	
2,4-Dinitrophenol	U (5)	UHC Treatment Standard	UHC	0.12	160	5 mg/L detection limits exceed the wastewater treatment standard.
2,4-Dinitrotoluene	U (1)	0.13 mg/L (D030), UHC Treatment Standard	D030, UHC	0.32	140	1 mg/L detection limits exceed the wastewater treatment standard.
2,6-Dinitrotoluene	U (1)	UHC Treatment Standard	UHC	0.55	28	1 mg/L detection limits exceed the wastewater treatment standard.
Fluoranthene	U (1)	UHC Treatment Standard	UHC	0.068	3.4	1 mg/L detection limits exceed the wastewater treatment standard.
Fluorene	U (1)	UHC Treatment Standard	UHC	0.059	3.4	1 mg/L detection limits exceed the wastewater treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

INEEL V-3 Liquids, SVOC Analysis

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Hexachlorobenzene	U (1)	0.13 (D032), UHC Treatment Standard	D032, UHC	0.055	10	1 mg/L detection limits exceed the wastewater treatment standard.
Hexachlorobutadiene (Hexachloro-1,3-butadiene	U (1)	0.5 (D033)UHC Treatment Standard	D033, UHC	0.055	5.6	1 mg/L detection limits exceed the wastewater treatment standard.
Hexachlorocyclopentadiene	U (1)	UHC Treatment Standard	UHC	0.057	2.4	1 mg/L detection limits exceed the wastewater treatment standard.
Hexachloroethane	U (1)	3.0 mg/L (D034), UHC Treatment Standard	D034, UHC	0.055	30	1 mg/L detection limits exceed the wastewater treatment standard.
Indeno (1,2,3-cd) pyrene	U (1)	UHC Treatment Standard	UHC	0.0055	3.4	1 mg/L detection limits exceed the wastewater treatment standard.
Isophorone	U (1)	None	NA	NA	NA	
2-Methylnaphthalene	U (1)	None	NA	NA	NA	
2-Methylphenol (o-cresol)	U (1)	200 mg/L, UHC Treatment Standard	D023, UHC	0.11	5.6	1 mg/L detection limits exceed the wastewater treatment standard.
4-Methylphenol (p-cresol)	U (1)	200 mg/L, UHC Treatment Standard	D025, UHC	0.77	5.6	1 mg/L detection limits exceed the wastewater treatment standard.
Naphthalene	U (1)	UHC Treatment Standard	UHC	0.059	5.6	1 mg/L detection limits exceed the wastewater treatment standard.
2-Nitroaniline (o-nitroaniline)	U (5)	UHC Treatment Standard	UHC	0.27	14	5 mg/L detection limits exceed the wastewater treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

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INEEL V-3 Liquids, SVOC Analysis

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
3-Nitroaniline (m-nitroaniline)	U (5)	None	NA	NA	NA	
4-Nitroaniline (p-nitroaniline)	U (5)	UHC Treatment Standard	UHC	0.028	28	5 mg/L detection limits exceed the wastewater treatment standard.
Nitrobenzene	U (1)	2.0 (D036) or UHC Treatment Standard	D036 or UHC	0.068	14	1 mg/L detection limits exceed the wastewater treatment standard.
2-Nitrophenol (o-nitrophenol)	U (1)	UHC Treatment Standard	UHC	0.028	13	1 mg/L detection limits exceed the wastewater treatment standard.
4-Nitrophenol (p-nitrophenol)	U (5)	UHC Treatment Standard	UHC	0.12	29	5 mg/L detection limits exceed the wastewater treatment standard.
N-nitroso-di-n-propylamine (Di-n-propylnitrosamine)	U (1)	UHC Treatment Standard	UHC	0.4	14	1 mg/L detection limits exceed the wastewater treatment standard.
N-nitrosodiphenylamine (Diphenylnitrosamine)	U (1)	UHC Treatment Standard	UHC	0.92	13	1 mg/L detection limits exceed the wastewater treatment standard.
Pentachlorophenol	U (5)	100 mg/L (D037), UHC Treatment Standard	D037, UHC	0.089	7.4	5 mg/L detection limits exceed the wastewater treatment standard.
Phenanthrene	U (1)	UHC Treatment Standard	UHC	0.059	5.6	1 mg/L detection limits exceed the wastewater treatment standard.
Phenol	U (1)	UHC Treatment Standard	UHC	0.039	6.2	1 mg/L detection limits exceed the wastewater treatment standard.
Pyrene	0.063 J	UHC Treatment Standard	UHC	0.067	8.2	0.063 mg/L concentration is below the wastewater treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

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INEEL V-3 Liquids, SVOC Analysis

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Pyridine	U (1)	5.0 (D038) or UHC Treatment Standard	D038 or UHC	0.014	16	1 mg/L detection limits exceed the wastewater treatment standard.
1,2,4-Trichlorobenzene	U (1)	UHC Treatment Standard	UHC	0.055	19	1 mg/L detection limits exceed the wastewater treatment standard.
2,4,5-Trichorophenol	U (5)	44 (D041), UHC Treatment Standard	D041, UHC	0.18	7.4	5 mg/L detection limits exceed the wastewater treatment standard.
2,4,6-Trichlorophenol	U (1)	2 (D042), UHC Treatment Standard	D042, UHC	0.035	7.4	1 mg/L detection limits exceed the wastewater treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

INEEL V-3 Liquid, Inorganic Analysis

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Aluminum	U (0.2) J	NA	NA	NA	NA	
Antimony	**0.218 R**	**UHC Treatment Standard**	**UHC**	**1.9**	**1.15 mg/L TCLP**	**This detected concentration was rejected. Therefore, waste must be re-analyzed to determine concentration.**
Arsenic	U (0.0044)	5.0 (D004), UHC Treatment Standard	D004, UHC	1.4	5.0 mg/L TCLP	
Barium	U (0.191) B J	100 mg/l (D005), UHC Treatment Standard	D005, UHC	1.2	21 mg/L TCLP	
Beryllium	U (0.0035) B J	UHC Treatment Standard	UHC	0.82	1.22 mg/L TCLP	
Boron	7.28	NA	NA	NA	NA	
Cadmium	U (0.0044)	1.0 (D006), UHC	D006, UHC	0.69	0.11 mg/L TCLP	
Calcium	51.4 J	NA	NA	NA	NA	
Chromium	U (0.01)	5 (D007), UHC Treatment Standards	D007, UHC	2.77	0.60 mg/L TCLP	
Cobalt	U (0.03)	NA	NA	NA	NA	
Copper	U (0.009) B J	NA	NA	NA	NA	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
B = Reported value is > to instrument detection limit but < contract required detection limit.
R = Result rejected.
W = Post digestion spike absorbance > than sample.

INEEL V-3 Liquid, Inorganic Analysis

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Iron	U (0.118) E	NA	NA	NA	NA	
Lead	0.0682 W	5.0 (D008), UHC Treatment Standard	D008, UHC	0.69	0.75 mg/L TCLP	
Magnesium	17.9	NA	NA	NA	NA	
Manganese	0.765	NA	NA	NA	NA	
Mercury	U (0.001)	0.2 (D009), UHC Treatment Standard	D009, UHC	0.15	0.025 mg/L TCLP	
Nickel	0.185	UHC Treatment Standard	UHC	3.98	11 mg/L TCLP	
Potassium	51.7	NA	NA	NA	NA	
Selenium	U (0.005)	1 (D010)	D010	0.82	5.7 mg/L TCLP	
Silicon	7.46 J	NA	NA	NA	NA	
Silver	U (0.0024)	5 (D011), UHC Treatment Standard	D011, UHC	0.43	0.14 mg/L TCLP	
Sodium	167	NA	NA	NA	NA	
Thallium	U (0.004)	UHC Treatment Standard	UHC	1.4	0.2 mg/L TCLP	
Tin	NA	NA	NA	NA	NA	
Vanadium	U (0.047) B J	NA	NA	NA	NA	
Zinc	0.964	NA	NA	NA	NA	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
B = Reported value is > to instrument detection limit but < contract required detection limit.
R = Result rejected.
W = Post digestion spike absorbance > than sample.

INEEL V-3 Liquid, Miscellaneous Analysis

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Bromide	1.8	None	NA	NA	NA	
Chloride	76.2	None	NA	NA	NA	
Fluoride	U (5)	None	NA	NA	NA	
Nitrate	0.172	None	NA	NA	NA	
Nitrite	U (4)	None	NA	NA	NA	
Phosphate	2.51	None	NA	NA	NA	
Sulfate	15.7	None	NA	NA	NA	
Total Organic Carbon	105	< 1%	NA	NA	NA	Wastewater is defined as < 1% TOC and < 1% TSS.
Total Halides	183	NA	NA	NA	NA	
Total Suspended Solids	65.3	<1%	NA	NA	NA	Wastewater is defined as < 1% TOC and < 1% TSS.
Oil & Grease	4.29	None	NA	NA	NA	

U = Not Detected (Detection limit in parenthesis).
TOC = 105 mg/L = 1.05E-2 %, which is < 1%.TSS = 65.3 mg/L = 6.53 E-3% which is < 1%. Therefore, liquid phase is considered a wastewater.

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INEEL V-3 Liquids, PCB Analysis

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable TSCA/RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Aroclor-1016	U (0.1)		None	NA	NA	
Aroclor-1221	U (0.2)	NA	NA	NA	NA	
Aroclor-1232	U (0.1)	NA	NA	NA	NA	
Aroclor-1242	U (0.1)	NA	NA	NA	NA	
Aroclor-1248	U (0.1)	NA	NA	NA	NA	
Aroclor-1254	U (0.1)	NA	NA	NA	NA	
Aroclor-1260	U (0.1)	NA	NA	NA	NA	
Total Concentration	U (0.1)	50 mg/kg for TSCA, UHC Treatment Standard for RCRA	None	0.1	10	This waste is not regulated under TSCA and it is below the UHC treatment standard level. Therefore, no PCB treatment is required prior to disposal.

U = Not Detected (Detection limit in parenthesis)

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INEEL OU 1-10 Site TSF-09, Tank V-3
Preliminary Sludge Chemical Characterization Summary

- The sludge phase of the waste associated with this tank is considered a non-wastewater for purposes of complying with the Land Disposal Restrictions. This determination as well as the hazardous waste determination listed below is preliminary based on existing analytical data associated with this waste.

- **Hazardous Waste Determination:** Highest concentrations detected are reported.

  The RCRA Waste codes that apply to this waste are as follows:

Constituent	Concentration Detected in Waste (mg/kg)	Regulatory Limit (mg/L)	Applicable Waste Code	LDR Treatment Standard for non-wastewater (mg/kg)
Beryllium	1.49 mg/L (theoretical)	1.22 mg/L	UHC	1.22 mg/L
Cadmium	0.198 mg/L (TCLP)	0.11 mg/L	UHC	0.11 mg/L
Chromium	0.601 mg/L (TCLP)	0.6 mg/L	UHC	0.6 mg/ L
Nickel	28.2 mg/L (theoretical)	11 mg/L	UHC	11 mg/L
Chloroethane	ND @ 10	6 mg/kg as UHC	UHC	6
2,4-Dinitrotoluene	ND @ 100 or 5.0mg/L (theoretical)	0.13	D030	140
Bis(2-ethyl hexyl) phthalate	9600E	28 mg/kg as a UHC	UHC	28
1,2-Dichlorobenzene	50 J	None if F-listed, or 6 mg/kg as a UHC	UHC	6
Hexachloroethane	ND @ 100 or 5.0 mg/L (theoretical)	3	D034	30
Pyridine	ND @ 100 or 5 mg/L (theoretical)	5	D038	16
Tetrachloroethene	480 (TCLP 8.658 mg/L, J D)	0.7 mg/L as a D039, None if F-listed, or 6 as a UHC	D039	6
Trichloroethene	36 D (TCLP 2.587 mg/L, J D)	0.5 mg/L as a D040, None if F-listed, or 6 as a UHC	F001	6
Vinyl chloride	ND @ 0.5 and 0.6 mg/kg	0.2	D043	6
Total PCB Concentration	400 D	50 mg/kg for TSCA and as a RCRA UHC	TSCA Regulated and RCRA UHC	< 50 for TSCA and10 for RCRA

- **UHC** = Underlying Hazardous Constituent.
  D = Dilution factor of 1000, Dilution factor of 50 for TCLP analysis, and Dilution factor of 20 for PCB analysis.
  J = Estimated Value.
  E = This is the result from re-analysis at a dilution factor of 10.
  ND = Not Detected

- The inorganic analysis performed on the sludge phase of this waste was reported in a total concentration (mg/kg) and in a TCLP extract concentration (mg/L). Although high total concentrations are reported in this waste, the TCLP extract concentrations were below the regulatory limits as a characteristic waste. For the other inorganic analyses identified as UHCs, only total concentrations are reported. Therefore, to evaluate the regulatory status of these constituents in this solid, the total constituent concentration is divided by 20, creating the maximum theoretical leachate concentration (as referenced in the table above), which is then compared to the applicable regulatory limit. The division factor reflects the 20-to-1 ratio of extraction fluid to solid used in the TCLP test method.

- Chloroethane reported a detection limit of 10 mg/kg, however the non-wastewater treatment standard is 6 mg/kg. . LDR guidance suggests that in cases where detection limits are above either the characteristic limit or treatment standards, the generator may use his knowledge of the waste, in lieu of analytical results, to certify that the constituent(s) are not present in the waste. However, since this waste will not be re-analyzed for Chloroethane, this constituent is assumed to be present in the waste at the detection limit value.

  Vinyl chloride was not detected in the sludge at 0.6 mg/kg and at 0.5 mg/L based on TCLP analysis. The characteristic limit for vinyl chloride is 0.2 mg/L. The TCLP detection limit exceeds this characteristic limit, therefore it is uncertain if this waste exceeds the toxicity characteristic based on TCLP analysis. However, the treatment standard for vinyl chloride, either as a toxicity characteristic or as an underlying hazardous constituent (UHC), is 6 mg/kg and vinyl chloride was not detected at 0.6 mg/kg. Based on this information this waste is assumed to contain vinyl chloride at the detection limit value and is considered characteristic however, no treatment for purposes of complying with the Land Disposal Restrictions (LDRs) would be required. As previously stated, LDR guidance suggests that in cases where detection limits are above either the characteristic limit or treatment standards, the generator may use his knowledge of the waste, in lieu of analytical results, to certify that this constituent is not present in the waste.

- The detection limits for a majority of the SVOCs were above the non-wastewater treatment standards, as well as the characteristic limits for several constituents. Again as previously stated, LDR guidance suggests that in cases where detection limits are above either the characteristic limit or treatment standards, the generator may use his knowledge of the waste, in lieu of analytical results, to certify that these constituents are not present in the waste. However, since this waste will not be re-analyzed for

these constituents, the following SVOCs are also assumed to be present in the waste at the detection limit value (see attached tables for concentrations) and are identified as underlying hazardous constituents (The above table identifies those SVOCs with detection limits exceeding the characteristic limits.): Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,I)perylene, Benzo(k)fluoranthene, Butylbenzylphthalate, Bis (2-chloroethoxy) methane, Bis (2-chloroethyl) ether, Bis (2-chloroisopropyl) ether, 4-Bromophenyl-phenylether, Chrysene, 4-Chloroaniline, 4-Chloro-3-Methylphenol, 2-Chloronaphthalene, 2-Chlorophenol, Dibenz(a,h)anthracene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 3,3-Dichlorobenzidine, 2,4-Dichlorophenol, Diethylphthalate, 2,4-Dimethylphthalate, Dimethylphthalate, Di-n-butylphthalate, Di-n-octylphthalate, 2,4-Dinitrophenol, 2,6-Dinitrotoluene, Fluoranthene, Fluorene, Hexachlorobenzene, Hexachlorobutadiene, Hexachlorocyclopentadiene, Indeno(1,2,3-cd)pyrene, 2-Methylphenol, 4-Methylphenol, Napthalene, 2-Nitroaniline, 4-Nitroaniline, Nitrobenzene, 2-Nitrophenol, 4-Nitrophenol, N-nitroso-dimethylamine, N-nitroso-di-n-propylamine, N-nitrosodiphenylamine, Pentachlorophenol, Phenanthrene, Phenol, Pyrene, 1,2,4-Trichlorobenzene, 2,4,5-Trichlorophenol, and.

- Based on a review of the analytical data provided by INEEL, this waste is considered both characteristic and a listed hazardous waste as well as TSCA regulated due to the presence of PCBs > 50 ppm. This waste requires incineration based on 40 CFR 761 for the presence of PCBs and any form of thermal treatment for the presence of the organic constituents, followed-by stabilization of the ash for the inorganic constituents.

Recommendation:

The physical form or phase of the waste to be treated and/or disposed should be the same form or phasedescribed above.

Since this waste will require some form of thermal treatment due to the presence of organics, the waste acceptance criteria of possible treatment facilities should also be considered.

INEEL V-3 Sludge, VOC Analysis

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Acetone	U (0.6) J	Treatment standard limit if UHC	UHC	0.28	160	
Benzene	U (0.6) J U (0.5) J D, TCLP	0.5 mg/l (D018) or treatment standard limit if UHC	D018 or UHC	0.14	10	
Bromodichloromethane	U (0.6) J	Treatment standard limit if UHC	UHC	0.35	15	
Bromoform (Tribromomethane)	U (0.6) J	Treatment standard limit if UHC	UHC	0.63	15	
Bromomethane	U (0.6) J	Treatment standard limit if UHC	UHC	0.11	15	
2-Butanone (MEK)	U (0.6) J U (0.5) J D, TCLP	200 mg/l (D035) or treatment standard limit if UHC	D035 or UHC	0.28	36	
Carbon disulfide	U (0.6) J	Treatment standard limit if UHC	UHC	3.8	4.8 mg/L	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
D = Dilution factor of 50 for TCLP analysis and 1000 for total analysis.
B = Blank contamination

INEEL V-3 Sludge, VOC Analysis

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Carbon tetrachloride	U (0.6) J U (0.5) J D, TCLP	0.5 mg/L (D019) or treatment standard limit if UHC	D019 or UHC	0.057	6	
Chlorobenzene	U (0.6) J U (0.5) J D, TCLP	100 mg/l (D021) or treatment standard limit if UHC	D021 or UHC	0.057	6	
Chloroethane	U (10)	Treatment standard limit if UHC	UHC	0.27	6	The 10 mg/kg detection limit exceeds the nww treatment standard.
Chloroform	U (0.6) J U (0.5) J D, TCLP	6 mg/l (D022) or treatment standard limit if UHC	D022 or UHC	0.046	6	
Chloromethane	U (0.6) J	Treatment standard limit if UHC	UHC	0.19	30	
Dibromochloromethane (Chlorodibromomethane)	U (0.6) J	Treatment standard limit if UHC	UHC	0.057	15	
1,1-Dichloroethane	U (0.6) J	Treatment standard limit if UHC	UHC	0.059	6	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
D = Dilution factor of 50 for TCLP analysis and 1000 for total analysis.
B = Blank contamination

INEEL V-3 Sludge, VOC Analysis

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
1,2-Dichloroethane	U (0.6) J U (0.5) J D, TCLP	0.5 mg/l (D028), or treatment standard limit if UHC	D028 or UHC	0.21	6	
1,1-Dichloroethene	U (0.6) J U (0.5) J D, TCLP	0.7 mg/l (D029) or treatment standard limit if UHC	D029 or UHC	0.025	6	
1,2-Dichloroethene (total)	U (0.6) J	Treatment standard limit if UHC	UHC	0.054	30	
1,2-Dichloropropane	U (0.6) J	Treatment standard limit if UHC	UHC	0.85	18	
cis-1,3-Dichloropropene	U (0.6) J	Treatment standard limit if UHC	UHC	0.036	18	
trans-1,3-Dichloropropene	U (0.6) J	Treatment standard limit if UHC	UHC	0.036	18	
Ethylbenzene	U (0.6) J	Treatment standard limit if UHC	UHC	0.057	10	
2-Hexanone (Methyl n-butyl ketone)	U (0.6) J	NA	NA	NA	NA	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
D = Dilution factor of 50 for TCLP analysis and 1000 for total analysis.
B = Blank contamination

INEEL V-3 Sludge, VOC Analysis

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
4-Methyl-2-pentanone (MIK)	U (0.6) J	Treatment standard limit if UHC	UHC	0.14	33	
Methylene chloride	2.7 J B D	Treatment standard limit if UHC	UHC	0.089	30	
Styrene	U (0.6) J	NA	NA	NA	NA	
1,1,2,2-Tetrachloroethane	U (0.6) J	Treatment standard limit if UHC	UHC	0.057	6	
Tetrachloroethene	**480 8.658 mg/L J D, TCLP**	**0.7 mg/l (D039) or treatment standard limit if UHC**	**D039 or UHC**	**0.056**	**6**	**8.6 mg/L is above the characteristic limit, and the 480 mg/kg concentration exceeds the nww treatment standard. Therefore, it may be either D039, F-listed or a UHC, requiring treatment.**
Toluene	U (0.6) J	Treatment standard limit if UHC	UHC	0.08	10	
1,1,1-Trichloroethane	U (0.6) J	Treatment standard limit if UHC	UHC	0.054	6	
1,1,2-Trichloroethane	U (0.6) J	Treatment standard limit if UHC	UHC	0.054	6	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
D = Dilution factor of 50 for TCLP analysis and 1000 for total analysis.
B = Blank contamination

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INEEL V-3 Sludge, VOC Analysis

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Trichloroethene	**36 D 2.587 mg/L J D, TCLP**	**None if listed**	**F001**	**0.054**	**6**	**2.5 mg/L exceeds the characteristic limit, and the total concentration is above the non-wastewater treatment standard. Therefore it may be D040, F002 or UHC, requiring treatment.**
Vinyl chloride	**U (0.6) J U (0.5) J D, TCLP**	**0.2 mg/l (D043), orTreatment standard limit if UHC**	**D043 or UHC**	**0.27**	**6**	**0.5 mg/L detection limit for TCLP exceeds the characteristic limit of 0.2 mg/L. However, the 0.6 mg/kg detection limit is below the treatment standard. Therefore, no treatment would be required regardless if it is a D043 or a UHC.**
Xylene (ortho)	U (0.6) J	NA	NA	NA	NA	
Xylene (total meta and para)	U (0.6) J	Treatment standard limit if UHC	UHC	0.32	30	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
D = Dilution factor of 50 for TCLP analysis and 1000 for total analysis.
B = Blank contamination

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INEEL V-3 Sludge, SVOC analysis.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Acenaphthene	U (100)	UHC Treatment Standard	UHC	0.059	3.4	100 mg/kg detection limit exceeds the nww treatment standard.
Acenaphthylene	U (100)	UHC Treatment Standard	UHC	0.059	3.4	100 mg/kg detection limit exceeds the nww treatment standard.
Anthracene	U (100)	UHC Treatment Standard	UHC	0.059	3.4	100 mg/kg detection limit exceeds the nww treatment standard.
Benzo (a) anthracene	U (100)	UHC Treatment Standard	UHC	0.059	3.4	100 mg/kg detection limit exceeds the nww treatment standard.
Benzo (a) pyrene	U (100)	UHC Treatment Standard	UHC	0.061	3.4	100 mg/kg detection limit exceeds the nww treatment standard.
Benzo (b) fluoranthene	U (100)	UHC Treatment Standard	UHC	0.11	6.8	100 mg/kg detection limit exceeds the nww treatment standard.
Benzo (g,h,I) perylene	U (100)	UHC Treatment Standard	UHC	0.0055	1.8	100 mg/kg detection limit exceeds the nww treatment standard.
Benzo (k) fluoranthene	U (100)	UHC Treatment Standard	UHC	0.11	6.8	100 mg/kg detection limit exceeds the nww treatment standard.
Benzoic acid	U (500)	None	NA	NA	NA	
Benzyl alcohol	U (100)	None	NA	NA	NA	
Butylbenzylphthalate	U (100)	UHC Treatment Standard	UHC	0.017	28	100 mg/kg detection limit exceeds the nww treatment standard.
Bis (2-chloroethoxy)methane	U (100)	UHC Treatment Standard	UHC	0.036	7.2	100 mg/kg detection limit exceeds the nww treatment standard.
Bis (2-chloroethyl)ether	U (100)	UHC Treatment Standard	UHC	0.033	6	100 mg/kg detection limit exceeds the nww treatment standard.
Bis (2-chloroisopropyl) ether	U (100)	UHC Treatment Standard	UHC	0.055	7.2	100 mg/kg detection limit exceeds the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
E = This is a result from re-analysis at a dilution factor of 10.

INEEL V-3 Sludge, SVOC analysis.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Bis (2-ethylhexyl) phthalate	**9600 E**	**UHC Treatment Standard**	**UHC**	**0.28**	**28**	**9600 mg/kg concentration exceeds the nww treatment standard. Therefore this constituent is a UHC.**
4-Bromophenyl-phenylether	U (100)	UHC Treatment Standard	UHC	0.055	15	100 mg/kg detection limit exceeds the nww treatment standard.
Carbozole (or Carbazole)	U (100)	None	NA	NA	NA	
Chrysene	U (100)	UHC Treatment Standard	UHC	0.059	3.4	100 mg/kg detection limit exceeds the nww treatment standard.
4-Chloroaniline (p-chloroaniline)	U (100)	UHC Treatment Standard	UHC	0.46	16	100 mg/kg detection limit exceeds the nww treatment standard.
4-Chloro-3-Methylphenol (p-chloro-m-cresol)	U (100)	UHC Treatment Standard	UHC	0.018	14	100 mg/kg detection limit exceeds the nww treatment standard.
2-Chloronaphthalene	U (100)	UHC Treatment Standard	UHC	0.055	5.6	100 mg/kg detection limit exceeds the nww treatment standard.
4-Chlorophenyl-phenylether	U (100)	None	NA	NA	NA	
2-Chlorophenol	U (100)	UHC Treatment Standard	UHC	0.044	5.7	100 mg/kg detection limit exceeds the nww treatment standard.
Dibenz(a,h)anthracene	U (100)	UHC Treatment Standard	UHC	0.055	8.2	100 mg/kg detection limit exceeds the nww treatment standard.
Dibenzofuran	U (100)	None	NA	NA	NA	
1,2-Dichlorobenzene (o-dichlorobenzene)	**50 J**	**UHC Treatment Standard**	**UHC**	**0.088**	**6**	**50 mg/kg concentration exceeds the nww treatment standard. Therefore this constituent is a UHC or an F-listed constituent.**
1,3-Dichlorobenzene (m-dichlorobenzene)	U (100)	UHC Treatment Standard	UHC	0.036	6	100 mg/kg detection limit exceeds the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).

J = Estimated Value

E = This is a result from re-analysis at a dilution factor of 10.

INEEL V-3 Sludge, SVOC analysis.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
1,4-Dichlorobenzene (p-dichlorobenzene)	U (100)	7.5 (D027), UHC Treatment Standard	D027, UHC	0.09	6	100 mg/kg detection limit exceeds the nww treatment standard.
3,3-Dichlorobenzidine (Dibenz (a,h) anthracene)	U (100)	UHC Treatment Standard	UHC	0.055	8.2	100 mg/kg detection limit exceeds the nww treatment standard.
2,4-Dichlorophenol	U (100)	UHC Treatment Standard	UHC	0.044	14	100 mg/kg detection limit exceeds the nww treatment standard.
Diethylphthalate	U (100)	UHC Treatment Standard	UHC	0.2	28	100 mg/kg detection limit exceeds the nww treatment standard.
2,4-Dimethylphenol	U (100)	UHC Treatment Standard	UHC	0.036	14	100 mg/kg detection limit exceeds the nww treatment standard.
Dimethylphthalate	U (100)	UHC Treatment Standard	UHC	0.047	28	100 mg/kg detection limit exceeds the nww treatment standard.
Di-n-butylphthalate	U (100)	UHC Treatment Standard	UHC	0.057	28	100 mg/kg detection limit exceeds the nww treatment standard.
Di-n-octylphthalate	U (100)	UHC Treatment Standard	UHC	0.017	28	100 mg/kg detection limit exceeds the nww treatment standard.
4,6-Dinitro-2-methylphenol	U (500)	None	NA	NA	NA	
2,4-Dinitrophenol	U (500)	UHC Treatment Standard	UHC	0.12	160	500 mg/kg detection limit exceeds the nww treatment standard.
2,4-Dinitrotoluene	U (100)	0.13 mg/L (D030), UHC Treatment Standard	D030, UHC	0.32	140	100 mg/kg detection limit exceeds the nww treatment standard. Using 100 mg/kg, the theoretical leachate value is 5.0 mg/L which exceeds the characteristic limit. Therefore, this may be a characteristic constituent or a UHC.

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E = This is a result from re-analysis at a dilution factor of 10.

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INEEL V-3 Sludge, SVOC analysis.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
2,6-Dinitrotoluene	U (100)	UHC Treatment Standard	UHC	0.55	28	100 mg/kg detection limit exceeds the nww treatment standard.
Fluoranthene	U (100)	UHC Treatment Standard	UHC	0.068	3.4	100 mg/kg detection limit exceeds the nww treatment standard.
Fluorene	U (100)	UHC Treatment Standard	UHC	0.059	3.4	100 mg/kg detection limit exceeds the nww treatment standard.
Hexachlorobenzene	U (100)	0.13 (D032), UHC Treatment Standard	D032, UHC	0.055	10	100 mg/kg detection limit exceeds the nww treatment standard.
Hexachlorobutadiene (Hexachloro-1,3-butadiene	U (100)	0.5 (D033)UHC Treatment Standard	D033, UHC	0.055	5.6	100 mg/kg detection limit exceeds the nww treatment standard.
Hexachlorocyclopentadiene	U (100)	UHC Treatment Standard	UHC	0.057	2.4	100 mg/kg detection limit exceeds the nww treatment standard.
Hexachloroethane	U (100)	3.0 mg/L (D034), UHC Treatment Standard	D034, UHC	0.055	30	100 mg/kg detection limit exceeds the nww treatment standard. Using 100 mg/kg, the theoretical leachate value is 5.0 mg/L which exceeds the characteristic limit. Therefore, this may be a characteristic constituent or a UHC.
Indeno (1,2,3-cd) pyrene	U (100)	UHC Treatment Standard	UHC	0.0055	3.4	100 mg/kg detection limit exceeds the nww treatment standard.
Isophorone	U (100)	None	NA	NA	NA	
2-Methylnaphthalene	32 J	None	NA	NA	NA	
2-Methylphenol (o-cresol)	U (100)	200 mg/L or UHC treatment standard	D023, UHC	0.11	5.6	100 mg/kg detection limit exceeds the nww treatment standard.

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INEEL V-3 Sludge, SVOC analysis.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
4-Methylphenol (p-cresol)	U (100)	200 mg/L or UHC treatment standard	D025, UHC	0.77	5.6	100 mg/kg detection limit exceeds the nww treatment standard.
Naphthalene	U (100)	UHC Treatment Standard	UHC	0.059	5.6	100 mg/kg detection limit exceeds the nww treatment standard.
2-Nitroaniline (o-nitroaniline)	U (500)	UHC Treatment Standard	UHC	0.27	14	500 mg/kg detection limit exceeds the nww treatment standard.
3-Nitroaniline (m-nitroaniline)	U (500)	None	NA	NA	NA	
4-Nitroaniline (p-nitroaniline)	U (500)	UHC Treatment Standard	UHC	0.028	28	500 mg/kg detection limit exceeds the nww treatment standard.
Nitrobenzene	U (100)	2.0 (D036) or UHC Treatment Standard	D036 or UHC	0.068	14	100 mg/kg detection limit exceeds the nww treatment standard.
2-Nitrophenol (o-nitrophenol)	U (100)	UHC Treatment Standard	UHC	0.028	13	100 mg/kg detection limit exceeds the nww treatment standard.
4-Nitrophenol (p-nitrophenol)	U (500)	UHC Treatment Standard	UHC	0.12	29	870 mg/kg detection limit exceeds the nww treatment standard.
N-nitroso-di-n-propylamine (Di-n-propylnitrosamine)	U (100)	UHC Treatment Standard	UHC	0.4	14	100 mg/kg detection limit exceeds the nww treatment standard.
N-nitrosodiphenylamine (Diphenylnitrosamine)	U (100)	UHC Treatment Standard	UHC	0.92	13	100 mg/kg detection limit exceeds the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
E = This is a result from re-analysis at a dilution factor of 10.

INEEL V-3 Sludge, SVOC analysis.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Pentachlorophenol	U (500)	100 mg/L (D037), UHC Treatment Standard	D037, UHC	0.089	7.4	500 mg/kg detection limit exceeds the nww treatment standard. Using 500 mg/kg, the theoretical leachate value is 25.0 mg/L which exceeds the characteristic limit. Therefore, this may be a characteristic constituent or a UHC.
Phenanthrene	U (100)	UHC Treatment Standard	UHC	0.059	5.6	100 mg/kg detection limit exceeds the nww treatment standard.
Phenol	U (100)	UHC Treatment Standard	UHC	0.039	6.2	100 mg/kg detection limit exceeds the nww treatment standard.
Pyrene	U (100)	UHC Treatment Standard	UHC	0.067	8.2	100 mg/kg detection limit exceeds the nww treatment standard.
Pyridine	U (100)	5.0 (D038) or UHC Treatment Standard	D038 or UHC	0.014	16	100 mg/kg detection limit exceeds the nww treatment standard. Using 100 mg/kg, the theoretical leachate value is 5.0 mg/L which at the characteristic limit. Therefore, this may or may not be a characteristic constituent or a UHC.
Tributylphosphate	NA	None	NA	NA	NA	
1,2,4-Trichlorobenzene	U (100)	UHC Treatment Standard	UHC	0.055	19	100 mg/kg detection limit exceeds the nww treatment standard.
2,4,5-Trichorophenol	U (500)	44 (D041), UHC Treatment Standard	D041, UHC	0.18	7.4	500 mg/kg detection limit exceeds the nww treatment standard.
2,4,6-Trichlorophenol	U (100)	2 (D042), UHC Treatment Standard	D042, UHC	0.035	7.4	100 mg/kg detection limit exceeds the nww treatment standard.

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E = This is a result from re-analysis at a dilution factor of 10.